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ABSTRACT

Current research and past experience indicate the need to examine longitudinal effects of staff development efforts on school improvement and knowledge use. A six-month follow-up study of knowledge use from staff inservice training was undertaken. Questionnaries were completed by 235 staff (94 percent teachers) who had participated in a study of 1982 inservice workshops. Participant follow-up responses were coded, merged and analyzed, along with pre-post inservice questionnaire data, against four inservice outcomes. The outcome variables, one from the post-inservice questionnaire and three from the follow-up survey, measured participants' ratings of predicted, continued, and future knowledge use and knowledge adaptation. These outcomes were regressed on and correlated with participants' background characteristics, professional and psychological traits, school and community characteristics, their school climate, workshop features, and the immediate effects of their workshop itself. All variables combined account for approximately 90 percent of the variance in the knowledge use measures. Approximately half of this variance is accounted for by staff and school characteristics and the remaining half by school climate and workshop features. The results, reported in this paper, show little evidence of knowledge adaptation. They further suggest that continued knowledge use is the result of a complex interaction of staff, contextual, and workshop factors. (Author/JMK)

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Staff, School and Workshop Characteristics Affecting Continued Use and Adaptation of Knowledge: A Follow-Up Study

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Abstract

Current research and past experience indicate the need to examine longitudinal effects of staff development efforts on school improvement and knowledge use. In this article, results of a six-month follow-up study of knowledge use from staff inservice training are reported. Questionnaires were completed by 235 staff (94% teachers) who had participated in a study of 1982 inservice workshops. Participant follow-up responses were coded, merged and analyzed, along with pre-post inservice questionnaire data, against four inservice outcomes. The outcome variables, one from the post-inservice questionnaire and three from the follow-up survey, measured participants' ratings of predicted, continued, and future knowledge use and knowledge adaptation. These outcomes were regressed on and correlated with participants' background characteristics, professional and psychological traits, school and community characteristics, their school climate, workshop features, and the immediate effects of their workshop itself. All variables combined account for approximately 90% of the variance in the knowledge use measures. Approximately half of this variance is accounted for by staff and school characteristics and the remaining half by school climate and workshop features. The results show little evidence of knowledge adaptation. They further suggest that continued knowledge use is the result of a complex interaction of staff, contextual and workshop factors. Many of these factors can be influenced by designers and implementors of staff inservice programs.

Introduction

Increasingly, over the past decade, researchers and practitioners of education have come to recognize the importance of staff development in effecting educational reform and improvement. Indeed, the convergence of economic and demographic trends with increasing public concerns and new technologies, has lead to calls for educational renewal and reform from the highest quarters of our state and national governments. The fact that this is occurring as we face a potential shortage of teachers, particularly in math and science, makes the issue of staff development fundamental to the notion of educational reform (Fullan, 1982).

Just as staff development is vital for educational change, so the issue of knowledge use is essential to staff development. The knowledge utilization process has been studied at length (Badura and Waltz, 1980; Dunn 1980; Holzner and Marx, 1979; Rich, 1981; Zaltman, 1979). Recently, researchers have demonstrated the importance of longitudinal and holistic approaches to knowledge use (Chin,et al. 1981; Dunn and Holzner, 1983; Ganz, 1980; Larsen, 1980). Clearly, the continued employment of information and skills is necessary for knowledge use to be effective. One of the problems associated with such approaches has been how to track and identify knowledge over time. Several authors have suggested that knowledge may change or be adapted over time (Campeau et.al., 1978; Berman and McLaughlin, 1978; Larsen, 1980).

Background and Setting

In the winter of 1981, TDR Associates, Inc. of Newton, Massachusetts, began a two and one-half year study of factors and conditions affecting knowledge dissemination and use in staff- initiated,

inservice workshops. This research was funded under a grant from the National Institute of Education and conducted in cooperation with the Commonwealth Inservice Institute of the Massachusetts Department of Education. The study went through three interrelated phases and involved the collection of responses from over 1000 teachers and administrators who had participated in one of 112 Institute-funded inservice workshops between September 1980 and June 1982. In addition to questionnaire surveys, TDR completed 25 brief, structured case studies of selected workshops through follow-up interviews and site visits.

The Commonwealth Inservice Institute was established in 1978 to help coordinate, provide funds, and offer support for participant-initiated, school-based professional development workshops throughout the state. Through a streamlined proposal and review process, the Institute is able to issue approximately 500 grants annually, mostly in the range of $200 to $2000. During the past five years it has funded over 1500 inservice projects involving approximately 30,000 teachers and administrators.

The research sites for the TDR study were selected from these projects and represent staff development and school improvement efforts in six general areas:

- basic skills curriculum development;
- special needs instruction;
- career needs and awareness;
- gifted and talented program development;
- discipline and behavior of students;
- computer assisted instruction and computer literacy.

The Study

The first phase of the study involved the collection of post-inservice responses from 467 teachers and administrators who had participated in one of 72 Institute-funded workshops during the 1980-81 academic year. The results of this phase were reported by Walberg and Genova in the Journal of Educational Research, November/December 1982. After this data analysis, as well as follow-up visits and participant interviews at fourteen of the first-phase sites, a revised pre- and post-inservice questionnaire was developed and mailed to over 460 teachers who attended one of 36 inservice workshops conducted in the spring of 1982. A total of 349 people returned both questionnaires; these data are analyzed and discussed in a forthcoming article by Genova, Rappa, and Walberg, entitled "Staff, School, and Workshop Influences on Knowledge Acquisition, Use, and Impact from Staff Inservice Efforts." One outcome variable measured in the second phase data collection, and reported on here, is participant predictions of the future use of information and skills acquired through their inservice experience. This variable is referred to below as predicted use.

Six months after the completion of the phase two workshops, a two-page, 25 item follow-up questionnaire was mailed to all those workshop participants who had completed and returned both the pre-inservice and post-inservice phase two questionnaires. These questionnaires were precoded with an individualized identification number so that participants' follow-up responses could be matched with their pre-post inservice questionnaires. Participants received a small

honorarium for completing and returning the follow-up questionnaire. Of the 349 subjects in the phase two study, 235 returned completed follow-up questionnaires. The following tables and discussion are based on analyses of these responses, plus data collected during follow-up visits and interviews with 42 teachers and administrators who participated in 8 of the 36, phase two workshops.

Defining Continued and Future Knowledge Use

The purpose of this follow-up study is to identify factors and conditions associated with predicted and continued knowledge use, knowledge adaptation, and anticipated future use of knowledge acquired through inservice training.

The four outcomes examined are:

- predicted knowledge use: participants' ratings of the likelihood that in the future they will use or continue to use knowledge acquired from their inservice (5 items in the post workshop questionnaire);
- continued knowledge use: participants' ratings of the frequency with which they used their inservice knowledge over a six-month period (5 items);
- adaptation: participants' assessments of the degree to which they altered or adapted the knowledge gained in their inservice training, during the same six-month period; (5 items);
- future use: participants' ratings of the likelihood that they will use inservice-acquired knowledge during the coming year (5 items).

In constructing these variables, various discrete forms of knowledge were considered. Researchers' conceptual models of knowledge often hold little or no meaning for practitioners and other users of knowledge (Chin, et.al., 1981; House, 1981; Wolcott, 1978). Therefore, five

practitioner-specific forms of knowledge were selected for examination in this study: information (ideas); skills (techniques); behaviors; activities (worksheets, products); and attitudes.

The follow-up questionnaire also collected data on whether or not the participant was currently involved in another inservice workshop; his/her current level of job satisfaction; and what influence certain organizational factors play in promoting continued and future knowledge use. Finally, participants were asked to state "in your own words" what things influenced them most in the continued use or non-use of knowledge gained from their inservice.

Method

In the following analysis, the phenomenon of continued knowledge use and adaptation resulting from staff-initiated inservice workshops is viewed as an interaction among several sets of variables: individuals' background characteristics, concerns, needs, experiences, and expectations; school and community contextual factors; and the inservice program itself. These variables are organized into two groups: Less Alterable or control variables---staff background, staff professional and psychological traits (learning style, needs, and concerns), and school and community characteristics; and More Alterable or independent variables---school climate, workshop characteristics, and workshop effects, as represented in Figure 1 below.

Insert Figure 1 about here

Participants' responses to the follow-up items were subjected to correlational and regression analysis. Follow-up ratings were merged with pre- and post-inservice questionnaire data and placed appropriately into the two groups of variables. A correlation matrix was constructed using Pearson's product-moment coefficients. In the analysis, many of the items were entered as separate variables. Correlational, factor, and reliability analysis, however, supported the assignment of several sets of items to composite scales; examples include personal traits, the school variables, and various clusters of outcome items. In all cases, the internal consistency reliabilities of such composite scales are reported, using Cronbach's alpha. Most scale reliabilities are moderately high to high. A few scales such as Individual Learning Style are only marginally robust (see Table 3). However, the reliabilities of the four outcome measures are extremely nigh (see Table 1).

Each variable group contains three sets of variables. Tables 2, 3, and 4 present the Less Alterable variable sets; Tables 2 and 3 show the items on staff background and professional/psychological traits; Table 4 shows the items on school and community characteristics. Tables 5, 6 and 7 present the More Alterable sets. Table 5 shows the items associated with school climate; Tables 6 and 7 show the items on inservice workship characteristics and workshop effects. Tables 2 to 4 report simple correlations while tables 5 to 7 show partial correlations. Because of the large number of variables (211) and the number of subjects (235) canonical correlation procedures are used to minimize the occurrence of chance exploitation of significance.[1]

Analysis

In this analysis, six sets of variables are defined as potential influences on continued knowledge use and adaptation: personal background; professional/psychological traits; school and community characteristics, school climate, workshop characteristics; and workshop affects (see Figure 1 and Tables 1 to 7). The last three are singled out for special analysis since they are potentially or relatively alterable, unlike the individual and school characteristics. Because the climate and workshop variables are potentially alterable, they can be considered "policy variables" subject to modification by those both within and outside schools to improve incidence of continued use and adaptation of knowledge. Their utility as policy variables clearly depends on their being significantly associated with the continued use and adaptation of knowledge.

Relatively stable and unalterable variables (Tables 2, 3, and 4) were included in the analysis to find out what individual and school characteristics are associated with continued knowledge use and adaptation; these tables contain only simple correlations. However, the correlations of school climate, workshop features, and workshop effects (Tables 5, 6) with continued knowledge use and adaptation are partial correlations, calculated with the less alterable variables controlled. This procedure removes covariation attributed to the less alterable variables, and provides a more stringent test for determining the significance of policy variables. The assumptions in Figure 1 are that the Less Alterable variables may influence the alterable ones, as well as use and adaptation, and that the More Alterable variables influence only use and adaptation of knowledge.

Insert Table 1 about here

Results and Discussion

Outcome Variables

As mentioned above, four dependent variables are examined in this analysis. Table 1 shows these outcome variables and reports the internal consistency reliabilities for each of the composite scales, as well as the means and standard deviations for each of the five items in the scale.

Table 1a shows that, at the conclusion of the inservice, participants predicted that they were most likely to use information (ideas) and skills (techniques) in the coming year and least likely to use specific activities (worksheets or exercises) or attitudes acquired from the inservice workshop. Six months later, participants reported (Table 1b) that they were continuing to use attitudes and information acquired in their inservice experience, while they employed specific behaviors and activities less often.

Table 1c documents participants' reluctance to adapt the knowledge gained through their inservice experiences. There is some evidence of low level adaptation of specific activities and skills, but very little of information and behaviors. Nonetheless, follow-up participants are optimistic that they will continue to use knowledge gained through inservice workshops in the future (Table 1d). On average, the respondents indicated that they are most likely to continue to use information, attitudes and skills, and slightly less likely to use activities and behaviors.

Sample Characteristics

Table 2 shows that about 77% of the sample are women with a wide range of education, professional experience, and longevity in their present school districts and present schools. Almost 84% of the sample are classroom teachers (Table 2g); and 12% are specialists of various kinds. The majority (58%) live outside the towns in which they teach. One average, the members of this sample took 5 credits of college or university instruction and attended 9 days of inservice training between 1980 and 1982. Less than 30% were involved in a staff inservice program when the follow-up data were collected.

Table 3a shows that the sample has a strong preference for learning via concrete experience and active experimentation, as indicated by their scores on the Learning Style Inventory (Kolb, 1976). Similarly, respondents expressed interest in learning situations involving hands-on activities and the application of information in their own classrooms (Table 2i). The areas of greatest professional concern and involvement for these teachers is their immediate environment: their students, classroom, or departmental unit (Tables 2b to 2c). For the most part, participants evinced high need for achievement, power, and affiliation with students; need to achieve with supervisors was also high (Table 2d). Participants indicated that they wanted to use inservice programs to learn about motivating students to achieve, new teaching methods, increased professional self-awareness, and working effectively with gifted students (Table 2e).

As indicated in Table 4a, workshop participants in this sample described their classrooms as moderate to large in size, of average to below average ability, and relatively crowded. They described their communities, on average as blue-collar, friendly, non-urban, and residential (Table 4b).

Staff and School Characteristics Correlations

Table 2 shows that relatively few individual background characteristics are significantly correlated with respondents' ratings of predicted and continued knowledge use. Sex is associated with future use, and level of education and recent college credits are related to adaptation, but only role in school, amount of recent inservice training, and job satisfaction are significantly correlated with predicted and continued knowledge use. In general, classroom teachers, particularly those at the secondary level, appear not to use inservice-derived knowledge on a continuing basis, while elementary specialists and teacher aids or substitutes do. As found earlier, level of participation in inservice programs and job satisfaction are good indicators of predicted knowledge use and continued use.

Table 3 demonstrates that few items associated with participants' psychological and professional background are significantly associated with the continued use or adaptation of knowledge. Participants' concern and involvement beyond their own students and classrooms is positively associated with continued and future knowledge use. Relatively few specific inservice needs are positively associated with outcomes. However, teachers who cite student needs and their own content/skill

inadequacies as motives for participating in a workshop are those who also report predicted, continued, and future knowledge use (Table 3f), suggesting that the immediate classroom context strongly influences knowledge use. Interest in the workshop topic itself, desire to share ideas with colleagues, and the wish to please a colleague or supervisor are also associated with continued or future use. To a certain extent, previous encounters with the inservice topic appear to encourage teachers to use information on that subject (Table 2g).

Participants' preferences for learning through reading and applying knowledge in their classes are also positively associated with the continued and future use (Table 2i). Participants who prefer to learn by reading appear to adapt knowledge to a greater extent than those who prefer hands-on activities or practice sessions. Participants who prefer discussions appear eager to predict considerable future use, but they also report relatively lower levels of actual continual use.

Table 4 shows that certain school and community characteristics are associated with continued and future knowledge use. Classrooms rated as small and spacious are locales for continued and future use. Communities rated as prosperous are associated with continued and future knowledge use, but the tendency to describe a community as blue collar is significantly associated with current and future non-use. For the most part, only events occuring in teachers' classes and with their students were positively associated with continued and future knowledge use.

Insert Table 5 about here

School Climate Correlations

Prior to the inservice workshop, participants rated their classroom and school characteristics and various aspects of their school and district climate. Table 5a shows that the climates of participants' schools supported Expressiveness and positive Learning Orientation. Teachers rated their classrooms as relatively traditional, structured, active, challenging, and disciplined, their schools relatively effective, interesting, warm, and cooperative.

Of a possible 88 correlations in Table 5, only six are statistically significant. Only one of the eight school climate variables, Goal Direction, is strongly associated with continued and future knowledge use. Goal Direction refers to the perception, by teachers, that the mission, goals and objectives of the school are clearly understood by staff members. Interestingly, having a classroom(s) rated as relatively satisfying is negatively associated with continued use and adaptation, while having one rated as relatively challenging is negatively associated with continued and future knowledge use.

Insert Table 6 about here

Workshop Characteristics

Table 6 shows correlations between workshop features, including consultant behaviors, and the outcome variables. Over 80% of the follow-up sample attended inservice workshops in one of four areas: Computer assisted instruction, basic skills, special education, and gifted and talented students. While in basic skills inservice workshops

are positively associated with continued and future knowledge use, CAI workshops are strongly and negatively correlated with continued use. Interviews with follow-up participants produced evidence that broad interest in basic skills by teachers, parents, and local and state education agencies was responsible for the continued use of inservice knowledge in this area. On the other hand, lack of hard-ware, soft-ware, planning, and support were cited as reasons for the low levels of knowledge use from CAI workshops.

Table 6 also shows that other workshop characteristics are significantly correlated with continued use and adaptation of knowledge. Specifically, voluntary recruitment predicts continued use, (Table 6b), and the number of sessions held during the workshop is positively correlated with adaptation (Table 6d). Conversely, the number of participants and number of schools represented in a workshop are negatively correlated with continued and future knowledge use (Table 6h and 6i). However, multi-site representation at a workshop is associated with adaptation. Findings about workshop characteristics such as these have been consistent in all phases of this study. Programs that enroll more than 20 participants and draw participants from several schools or districts are significantly less effective than single-school workshops with 12 to 20 participants.

Table 6 shows that certain consultant characteristics and presentation styles seem to promote continued use, adaptation, and future use of knowledge (Table 6, j through o). The number of consultants involved in the inservice is not significantly correlated with continued or future use, but the type of setting a consultant came from is. Consultants from "another school system" are associated with

high predicted use, but only slightly associated with continued use and negatively with adaptation. Consultants from "colleges or universities" predict high continued use; and those from "business or industry" suggest negative predicted, continued, and future use. The negative effects of business and industrial consultants were reported in phase two of this study (Genova and Rappa, 1983), and are most likely related to the support and equipment problems associated with CAI. Interstingly, college and university consultants were negatively associated with effects immediately after the inservice workshop, however because many of them were involved in basic skills and gifted and talented inservice projects, this reversed over time.

As with consultants from "another school system," the extent to which the consultant's style matched participants' is positively associated with predicted use but negatively related to continued use and adaptation. On the other hand, the overall effectiveness of the consultant and his/her effectiveness in performing certain instructional specific behaviors are positively related to predicted and future use. Furthermore, consultant ability to relate well to participants and to demonstrate expertise in the topic area are significantly related to continued use. Responding well to participants' questions and concerns does appear to promote knowledge adaptation, whereas most other behaviors are negatively correlated with this outcome.

Finally, Table 6o examines the use of twelve particular instructional/learning methods, and participants' ratings of how theoretically or practiclly oriented these methods were. In reviewing these 96 partial correlations an interesting pattern emerges. First, practical methods of

presenting knowledge are positively correlated with predicted and continued knowledge use. Second, with the exception of participating in simulations or games, methods and activities focusing on the workshop itself are negatively associated with predicted or continued knowledge use, whereas teaching strategies focused on teachers' classrooms and activities are significantly correlated with predicted, continued, and future knowledge use. These findings, reinforced by site-visit interviews, confirm that to be effective inservice workshops must successfully create a link between the workshop and the classroom.

Insert Table 7 about here

Workshop Effects

Table 7 shows the relationship among what participants feel they learned, how they learned about it, and its predicted, continued, and future use. Of the twelve areas of learning rated by participants, six are significantly related to outcomes (Table 7a). The areas most clearly related to outcomes are: increasing awareness of your own teaching, improving staff communication, and motivating students to learn. Table 3e shows that these same areas were identified by teachers as among those in which they felt the greatest need for inservice training. In addition, improving social relationships among students, effective use of worksheets or learning exercises, and working with gifted and talented students are positively related to outcomes. In general, when the association with predicted, continued, and future knowledge use is positive, the relationship with adaptation is negative.

The instructional or learning methods most strongly associated with predicted and continued knowledge use are: applying knowledge and working with the consultant in the teacher's classroom, reading, and participating in simulations (Table 3b). Doing written assignments is significantly but negatively associated with continued use. Viewing A.V. presentations and listening to consultants' lectures are also negatively correlated with continued use, although not significantly. It is interesting that participants rated working with the consultant in their classrooms and participating in simulations low as methods for acquiring knowledge, yet they are strongly related to continued and future use. These findings demonstrate effectiveness of classroom and participant-focused methods over workshop and consultant-oriented techniques.

Table 7c also shows that certain staff, school and workshop factors affect the predicted use of knowledge (post-inservice questionnaire) and influence continued and future knowledge use (follow-up questionnaire). The quality of the inservice project is highly correlated with continued and future use, as are participants' job needs and the needs of students in their classes. Participants discounted administrators' expectations with respect to continued and future use in answering the post-questionnaire. However, on the follow-up questionnaire, administrators' support and expectations are strongly and positively associated with future use. Likewise, in the post-questionnaire data, support from colleagues and administrators is only slightly associated with continued and future use, but in the follow-up data these items are significantly related to continued and future use.

An analysis of variance of post-inservice and follow-up responses to four of these items (needs of students, administrator support, administrator expectations, and collegial support) shows that they are significantly higher (at the .01 level) in the follow-up survey (Table 7d). Site visits and interviews confirm this finding. A satisfying workshop experience and the needs of students are important for immediate knowledge use. As time proceeds administrators' expectations and peer and supervisor support become more influential in determing whether the new information, skills, behaviors, etc. will continue to be used.

Insert Table 8 about here

Multiple Correlations with Knowledge Use Outcomes

Table 8 shows the multiple correlations of the four outcome measures (see Table 1 for coding and reliabilities) with the two sets of Less Alterable and More Alterable variables. Table 2 shows that staff background characteristics are insignificantly associated with predicted, continued and future knowledge use. However, as a set they are significantly associated, albeit at the .05 level, with adaptation of knowledge. On the other hand, staff professional and psychological traits are significantly associated with all outcomes except adaptation.

Among the Less Alterable variable sets, school and community characteristics are least powerfully associated with outcomes, indicating

that in planning future workshops, knowledge of structural and demographic characteristics of school and commun'ty can contribute little to assuring success for the efforts. A combination of staff background characteristics and staff professional and psychological traits is significantly associated with predicted use, continued use, and knowledge adaptation. As a group, the Less Alterable variable sets, while having a combined R^2 in excess of .47 for all outcomes, is significantly correlated only with predicted use. This finding tends to support the assignment of these variables to the less alterable or control grouping.

Table 8 shows that of the More Alterable variable sets, workshop characteristics is most strongly related to predicted, continued and future knowledge use. School climate is most weakly associated with the outcome variables, and only the workshop effects variables are significantly associated with all four outcomes.

The same is true of partial correlations of school climate with outcomes. Adding school climate to the control variables raises the the multiple correlations to the range of .60 to .75, but it does not bring additional ones to a level of statistical significance. Adding workshop characteristics to the control variables raises the correlations from the range of .47 to .71 to the range of .76 to .85, of which three of the four correlations are significant at the .05 level or better.

By adding workshop characteristics to school climate and all control variables, we increase the multiple correlations to between .86 and

.90 but only that for predicted use is significant (.88 at the .01 level). Performing a multiple correlation of all independent and dependent variables adds approximately .02 to the correlations, increasing them to between .90 and .92; these are significant for both predicted use (.01 level) and continued use (.05 level). Although unusually high, multiple correlations of both groups of variables with adaptation future use do not attain significance at the .05 level.

Insert Table 9 about here

Predicted Continued Use and Knowledge Adaptation

Table 9 shows the intercorrelations between the four dependent variables in this follow-up study and two key variables from the phase two study: new knowledge and knowledge use. The same five items and response format were used for each of the six variables; internal consistency reliabilities are presented for each variable in the table, in parenthesis in the diagonal.

Review of Tables 2 - 7 indicates that predicted use varies in its ability to forecast continued use. In some cases it is similarly correlated with the Less and the More Alterable variables (e.g., several of the motive variables in Table 3). In other cases it is either more highly correlated with the independent variables (Tables 6 and 7) or less highly correlated as (e.g., needs and concerns in Table 3). Table 9 shows that, in general, predicted use is strongly related to continued use with a correlation coefficient of .44 significant at the .001 level.

Interestingly, predicted use is more highly correlated with the amount of new knowledge acquired from the inservice (.60), knowledge used during or immediately after the inservice workshop (.55), and with indications of future use (.53), than with continued use.

Continued knowledge use, on the other hand, is more strongly related to knowledge used during or immediately after the inservice and is correlated most strongly with future use. These associations suggest that what people use, either during or shortly after their inservice training, is a better indicator of what they will continue to use than what they predict they will use. Similarly, what people continue to use indicates what they will use in the future. When considered in conjunction with the findings that workshop effect variables are also highly correlated with the dependent variables, we must conclude that, in terms of continued knowledge use, nothing succeeds like success.

As mentioned above, several authors have hypothesized that effective knowledge use may require that users "adapt the knowledge to fit their own needs, or there may be mutual adaptation between the user and knowledge producer..." (Larsen, 1980, p. 428). This may indeed be the case in some instances of knowledge dissemination and utilization. However, in the analyses of these data, little evidence can be found to confirm this hypothesis. Table 9 shows that adaptation was negatively or negligibly associated with the other outcomes. By and large, few of the 235 participants in this study indicated that they had altered

or adapted the knowledge gained from their inservice experiences, either at the end of the inservice program, or six months later. With the exception of some staff professional traits and a few workshop characteristics specifically aimed at individualized activities, all associations with adaptation were either negative or insignificant.

Conclusion

These results are correlational. To some extent, the possible superiority of some school districts and the differential effects of demographic and economic shifts (especially between urban and non-urban areas leading not only to more satisfying school climates and more supportive environments for knowledge use, but also to more effective workshops), the vagaries and vicissitudes of time itself, and other causal ambiguities, suggest caution in generalizing the findings.

From the above analyses, however, it is apparent that a number of characteristics of individual educators, their schools, and their inservice workshop experiences are significantly associated with their continued and future use of knowledge. In general, the significant associations provide support for the model used in this analysis and suggest several policy directions which may promote effective staff development and continued use of knowledge acquired through staff inservice programs.

Key variable sets, such as workshop characteristics and workshop effects suggest that continued and future knowledge use require carefully structured, practical, focused, and well-led inservice workshop experiences,

which not only disseminate new and useful knowledge but also create and reinforce linkages between the classroom and the workshop. The continued use of knowledge also appears to hinge on two factors: early success in using the knowledge, and current need and relevance. Finally, the presence of strong leadership and supportive professional environments appear to play an increasingly important role in promoting continued and future knowledge use over time.

Relationships among staff professional and psychological traits and continued knowledge use remain unclear and will require further research. School climate and workshop characteristic associations, controlled for individual and school characteristics, are of strategic interest in designing inservice workshops and educational innovation and dissemination programs because these variables are subject to intervention and alteration and can result in increased and prolonged knowledge use to promote educational effectiveness.

Footnote

1. In the following tables significant correlations are not noted. The levels of significance for a sample population of 235, using canonical correlation procedures are as follows:

   correlations of .12 to .15 are significant at the .05 level

   correlations of .16 to .20 are significant at the .01 level

   correlations of more than .21 are significant at the .001 level.

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FIGURE 1

MODEL A: Path Diagram of possible influences on predicted continued knowledge use/adaptation and future use.

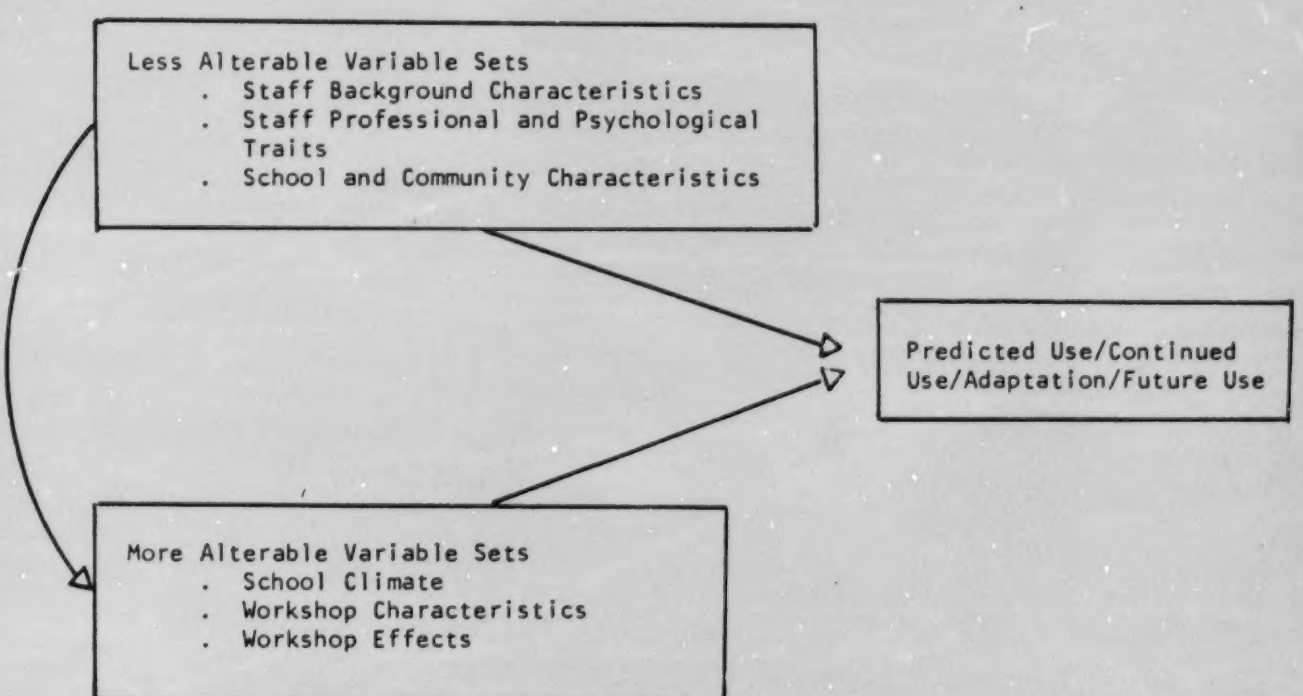
Less Alterable Variable Sets
. Staff Background Characteristics
. Staff Professional and Psychological Traits
. School and Community Characteristics
Predicted Use/Continued Use/Adaptation/Future Use
More Alterable Variable Sets
. School Climate
. Workshop Characteristics
. Workshop Effects

Table 1

Six-Month Knowledge Use Follow Up.

Predicted, Continued Use, Adaptation and

Future Use Variables with Reliabilities for

Each Scale ( ).

a. Predicted Use (.90)

Participants' ratings of the likelihood that they will sue the skills, knowledge, behavior acquired through the inservice in the coming year. (.90) (Coded 0 = not at all to 4 = very likely)	Mean	Standard Deviation
	3.12	1.04
Information	3.29	1.09
Skills	3.23	1.13
Behaviors	2.90	1.43
Activities	2.64	1.44
Attitudes	2.77	1.39

b. Continued Knowledge Use (.93)

How much information, skills, etc. that participants acquired from their past inservice project are they using. (Coded from 0 = none at all to 4 = a great deal)	Mean	Standard Deviation
	2.48	1.27
Information	2.52	1.41
Skills	2.35	1.52
Behaviors	2.23	1.53
Activities	1.86	1.57
Attitudes	2.54	1.52

Table 1 (continued)

c. Adaptation (.85)

How much participants have adapted or changed the information and knowledge they acquired during the six months. (Coded 0 = not at all to 4 = a great deal)	Mean	Standard Deviation
	1.30	0.67
Information	1.17	0.93
Skills	1.40	0.89
Behaviors	1.30	0.94
Activities	1.45	0.99
Attitudes	1.37	1.00

d. Future Use (.93)

Participants' ratings of the likelihood that they will continue to use the knowledge or information acquired from the inservice in the future. (Coded 0 = not at all to 4 = very likely)	Mean	Standard Deviation
	3.02	1.05
Information	3.10	1.20
Skills	3.00	1.25
Behaviors	2.83	1.26
Activities	2.56	1.43
Attitudes	3.01	1.20

Table 2

Background Characteristics of Inservice Participants and Correlations with Knowledge Use Outcomes

Variable, Mean, and Standard Deviation or Percent Response		Correlation with Continued Use/Adaptation			
		Predicted Use	Continued Use	Adaptation	Future Use
a. Female (coded sequentially)		.11	.10	-.11	.13
Male	23.4%				
Female	76.6%				
b. Age range in years					
Mean: 40.3; S.D.: 9.05		.04	.04	.10	.02
Range: 22-65					
c. Highest Degree attained		-.06	.02	.12	.00
(coded sequentially 1, 2, 3, etc.)					
Mean: 1.80; S.D. 0.88					
Bachelors	44.3%				
Masters	37.3%				
Masters plus 30 hours	14.6%				
Certificate of advanced study	3.0%				

Table 2(continued)

Variable, Mean, and Standard Deviation	Predicted Use	Continued Use	Adaptation	Future Use
		Correlation with Continued Use/Adaptation		
All but dissertation 0.4%				
Doctorate 0.4%				
d. Years in education	.04	.06	.05	.06
Mean: 14.13; S.D.: 7.1				
Range: 1-40 Years				
e. Years in present school district	.02	.02	.06	.03
Mean: 11.1; S.D.: 6.5				
Range: 1-32 Years				
f. Years in present school	.10	-.03	-.04	.05
Mean: 8.9; S.D.: 6.3				
Range: 1-32 Years				

Table 2 (continued)

Variable, Mean and Standard Deviation or Percent response	Predicted Use	Continued Use	Adaptation	Future Use
		Correlation with Continued Use/Adaptation		
g. Role in School				
Classroom teacher 74.4%	-.08	-.23	-.04	-.18
Special needs teacher 6.4%	.02	.19	-.07	.16
Specialist 11.9%	.11	.08	-.00	.06
Teacher with administrative role 4.3%	-.03	.06	.05	.05
Aide or permanent substitute 3.0%	.04	.15	.21	.09
h. Majority of time as an educator				
Elementary classroom teacher 47.2%	.08	.01	-.04	.15
Junior high school classroom teacher 19.1%	-.10	-.06	-.03	-.11
High school classroom teacher 13.2%	-.06	-.07	.12	-.13
Elementary specialist 6.0%	.10	.12	-.04	.03

Table 2 (continued)

Variable, Mean, and Standard Deviation or Percent response	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Secondary specialist 4.3%	.02	-.05	-.02	-.05
Elementary special needs 3.4%	.03	.12	-.15	.07
Secondary special needs 1.7%	-.07	-.03	-.07	.01
Administrator 1.7%	-.00	.12	.13	.07
i. Number of credit hours taken at a college or university over the past two years Mean: 4.9; S.D.: 7.6 Range: 0-60 credit hours	.05	.09	.13	.08
j. Now involved in an inservice workshop (follow up) (coded sequentially) No: 70.4% Yes: 29.6%	.08	.02	-.08	.11

Table (continued)

Variable, Mean, and Standard Deviation or Percent response	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
k. Number of days of inservice training received over the past two years	.17	.13	.06	.11
Mean: 9.2; S.D.: 10.5				
Range: 0-65 days				
l. Residence (Do you reside where you teach?)				
Yes 41.8%	-.09	-.04	.04	-.03
No 59.2%	.01	.07	.01	.04
m. Overall job satisfaction (follow up)	.12	.11	-.07	.12
Mean: 3.75; S.D.: 0.84				
(coded 1 = very low to 5 = very high)				
Very High 15.5%				
High 53.1%				
Moderate 24.7%				
Low 5.0%				
Very Low 2.7%				

r > .12 = P .05
r > .16 = P .01
r > .20 = P .001

Table 3

Psychological & Professional Traits of Inservice Participants and Correlation with Knowledge Use Outcomes

			Correlation with Continued Use/Adaptation			
	Mean[2]	Standard Deviation	Predicted Use	Continued Use	Adaptation	Future Use
a. Individual Learning Style[1]:						
with reliabilities ( )						
Reflective (.59)	41.9	25.8	.02	-.05	.07	.02
Experimental (.43)	56.5	26.7	-.02	.01	-.12	-.08
Concrete (.42)	65.8	25.1	.04	.05	.00	.06
Abstract (.59)	40.1	23.7	.00	-.06	-.03	-.05

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(1) Using David Kolb's Learning Style Inventory (1976), participants were asked to identify themselves as: reflective learners, experimental learners, concrete experienced learners or abstract conceptual learners. Learning style scales are presented with reliabilities ( ).

(2) The means for these composite scales were normalized using a procedure recommended by Kolb.

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
b. Sphere of Personal Concern:(3) with reliabilities ( )						
For your own students, class and grade level or dept. (.61)	4.48	0.61	.01	.10	-.03	.08
For your fellow staff, and school as a whole (.72)	3.34	0.63	-.02	.11	-.03	.08
For your community and district (.66)	3.38	0.67	.07	.12	-.03	.11

(3) How much concern participants have for what happens regarding; Coded from 1 = none or little to 5 = high. Sample items and reliabilities ( ) given.

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
c. Sphere of Involvement:(4) with reliabilities ( )						
With my own students class, grade level or unit (.60)	4.29	0.56	.04	.05	-.04	.08
With fellow staff and my school as a whole (.74)	3.26	0.68	-.01	.13	.05	.14
With the school district and community (.73)	3.18	0.73	.09	.13	.03	.11

(4) How much participants tend to get involved with what happens regarding; Coded from 1 = not at all to 5 = very high. Sample items and scale reliabilities ( ) given.

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
d. Psychological Needs For: (5)						
with reliabilities ( )						
Achievement						
... with Students Creating successful learning experiences for students (.56)	3.84	0.46	-.01	.00	.07	-.01
... with Peers: Colleagues tell you they learn from you (.78)	3.32	0.64	.04	-.00	.10	.06
... with Supervisors: Being regarded as superior by supervisors (.76)	3.70	0.65	.08	.05	.08	.10

(5) Coded from 1 = very low or none to 5 = very high, with sample items and scale reliabilities ( ).

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Power						
... over Students:						
Students follow your directions (.77)	3.94	0.55	-.11	-.08	.02	-.15
... over Peers:						
Fellow staff follow your suggestions (.80)	3.10	0.64	-.01	.01	.07	.07
... over Supervisors:						
Persuade supervisors to do things your way (.78)	3.08	0.65	-.09	-.04	.08	-.00

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Social Acceptance						
... by Students: For your students to like you (.66)	3.55	0.57	-.05	.05	.07	.05
... by Peers: Socialize with fellow faculty (.76)	3.08	0.64	-.03	-.02	-.01	.03
... by Supervisors: Have supervisors enjoy talking with you (.64)	3.12	0.66	-.08	.00	.00	-.04

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
e. Inservice Needs/Desires:(6)						
New subject matter or topics to teach	3.81	0.95	-.03	-.06	-.14	-.01
New or varied teaching methods	4.03	0.82	.04	.08	-.11	.06
Motivating students to learn/achieve	4.31	0.77	.07	.08	-.11	.06
Use of worksheets or learning exercises	3.18	1.03	.02	.12	-.05	-.03
Dealing with disruptive students	3.84	0.99	.01	.03	-.02	.07
Working more effectively with special needs (Chapter 766) students	3.62	1.01	.07	.12	-.07	.14

(6) How much interest participants have in learning more about...; Coded from 1 = little or none to 5 = extremely high.

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Enhancing social relationships among students	3.29	1.07	.06	.14	.07	.14
Working more effectively with gifted and talented students	3.88	1.00	.01	.03	.02	.03
Career/vocational awareness for students	3.28	1.07	-.00	.04	.02	.03
Improving interracial attitudes/relationships	3.23	1.09	-.02	.02	.07	.03
Learning to better use community resources	3.48	0.97	.08	.05	-.04	.06
Providing guidance and counseling to students	3.44	1.02	.02	.16	-.04	.12

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Increasing your awareness of your own teaching style/behavior	3.88	0.88	.04	.11	-.01	.12
Improving staff communication or morale	3.68	0.97	.00	.07	-.00	.08
f. Motives: (7)						
My interest in the topic	4.07	0.96	.24	.06	-.04	.10
Reputation of consultant	2.48	1.48	.19	.14	-.00	.14
Convenient time/location	3.02	1.35	.13	.04	.03	-.04
Need for inservice increments	2.00	1.27	.00	-.04	.01	-.08
Low/no cost course credits	2.48	1.44	.03	-.06	-.01	-.08

(7) The main reason(s) or motive(s) for attending the inservice training sessions; Coded from 1 = very low or none to 5 = extremely important.

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Needs of my students/classes	3.46	1.37	.25	.33	-.02	.17
Interest in sharing ideas with fellow staff members	2.83	1.24	.19	.19	.11	.20
Content/skill needs of my job	3.04	1.48	.24	.25	-.05	.18
Desire to please a colleague or supervisor	1.30	0.69	.12	.13	.07	.14
I am required to attend	1.15	0.65	-.06	-.05	.07	-.09
g. Previous Experience with the Inservice Topic: Mean: 1.77; S.D.: 0.63	1.77	0.63	-.14	-.21	-.08	-.16
Yes (1) 34.1%						
No (2) 54.7%						
I don't know (3) 11.2%						

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
h. Expectations:(8)						
Of the upcoming inservice program	4.06%	0.80	.22	.04	-.01	.03
Of inservice training offered						
... at universities/colleges	4.51	1.30	.09	-.09	.02	-.03
... by universities/colleges at your school/district	4.35	1.39	.13	.03	-.03	.02
... at teacher centers or regional cooperatives	4.42	1.50	.08	.03	-.01	.03
... by teacher centers or regional cooperatives at your school/district	4.24	1.51	.15	.01	.05	.02

(8) Coded from 1 = very low/negative to 5 = very high positive.

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
... by Commonwealth Inservice Institute	5.07	1.34	.05	-.13	.01	-.07
... by your district/central administration	3.71	1.59	.06	-.08	.08	-.04
i. Presentation Methods and Styles of Learning: (9)						
A consultant	3.20	1.00	.15	.03	.10	.06
Doing written homework	2.64	1.00	.00	.03	-.14	.05
Reading	3.58	0.83	.15	.11	.13	.15
From other colleagues in small group discussions	3.79	0.89	.15	.09	-.04	.15
Hands-on activities	4.25	0.88	.07	.06	-.12	.09
Developing projects or programs	3.73	1.06	.14	.10	-.07	.17

(9) Participant ratings of the effectiveness of various presentation methods in terms of their own learning styles; coded from 1 = very ineffective to 5 = very effective.

Table 3 (continued)

	Mean[2]	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
A.V. presentations, slides, simulations or games	3.71	0.95	.16	.01	-.10	.09
Observing others do it (practice, apply)	3.55	0.87	.04	.09	-.00	.05
Practicing the techniques, skills and behaviors at the sessions	3.78	0.92	.08	.02	-.12	.10
Putting the information to practice in your class(es)	4.27	0.75	.17	.15	-.04	.21
Having the consultant work with you in your class(es)	3.50	1.00	.11	.05	-.07	.01

r > .12 = P .05
r > .16 = P .01
r > .20 = P .001

Table 4

School & Community Characteristics Correlated with Inservice Workshop Impact

(semantic differentials coded 1 to 7; 4 = neutral)

Variable/Characteristic	Mean	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
a. Classroom:						
Large-Small	3.77	1.70	.08	.14	-.10	.16
Low ability-High ability	3.81	1.22	-.00	-.00	-.01	.01
Crowded-Spacious	3.76	1.60	-.00	.12	-.14	.13
b. Community:						
White collar-Blue collar	4.18	1.78	-.17	-.14	.00	-.14
Non-supportive-Supportive	3.91	1.62	.12	.08	-.02	.11
Rural-Urban	3.38	1.63	-.03	-.05	-.03	-.01
Unfriendly-Friendly	4.66	1.29	.15	.04	-.05	.13
Depressed-Prosperous	4.30	1.50	.11	.14	-.02	.13
Commercial-Residential	5.51	1.42	.07	.02	-.02	.09
Fragmented-Unified	3.73	1.39	.06	-.00	-.01	-.00

Table 4 (continued)

Variable/Characteristic	Mean	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
c. Events: (1)						
Certain students within your class(es)	1.21	1.23	.05	.21	.01	.15
Your own classroom/ class(es)	1.34	1.28	.04	.19	-.07	.09
The classrooms and students of other teachers in your school	1.30	1.03	.04	.07	-.14	.07
The work of a few of your closest fellow staff members	1.45	1.14	.11	.09	-.02	.09
All teachers in your school	1.37	0.96	.04	.07	.10	.09
Your department or grade level unit	1.37	1.13	.08	.13	-.07	.07

(1) The effect that any external events or changes in the past year (other than the inservice) had on each of the variables; coded 0 = no effect, 1 = very negative effect, to 4 = very positive effect.

Table 4 (continued)

Variable/Characteristic	Mean	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Your school building as as whole	1/51	1.02	.09	.07	.05	.16
Your school district as a whole	1.44	0.98	.02	.07	.02	.10
Your professional association or union	1.10	0.92	-.04	.01	.02	.09
The parents of students that you teach	1.29	1.08	.08	.10	.02	.09
The community in which your school is located	1.26	1.06	.02	-.01	.06	.06
Your personal life	1.43	1.31	.11	.08	-.00	.12

$r > .12 = P \ .05$
$r > .16 = P \ .01$
$r > .20 = P \ .001$

Table 5

School Climate Characteristics and Correlations with Inservice Impacts

Variable/Characteristic	Mean	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
a. School Climate Variable (4-item scales score 1 = strongly idsagree to 4 = strongly agree; sample items and scale reliabilities ( ) given)						
Expectation:						
Teachers are expected to keep up professionally (.81)	2.75	0.40	.01	.03	-.00	-.04
Learning Orientation:						
Teachers value acquiring new professional skills (.77)	2.81	0.44	.03	-.07	-.19	-.02
Expressiveness:						
Creative work is respected here (.59)	2.77	0.43	.08	.05	.09	.01

Table 5 (continued)

Variable/Characteristic	Mean	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Leadership: Administrators here make you feel enthusiastic about teaching (.88)	2.55	0.55	.01	.02	.00	.03
Goal Direction: The goals of this school are clearly understood by most teachers (.72)	2.65	0.48	.06	.17	-.06	.12
Support: Teachers here are encouraged to try new approaches to their work (.85)	2.54	0.48	.04	.07	-.02	.07
Equal Treatment: Some teachers get special privileges (.74)	2.54	0.53	-.01	-.05	.01	-.12
Problem Solving: Issues and problems are effectively addressed here (.79)	2.60	0.50	.01	.02	-.05	-.07

Table 5 (continued)

Variable/Characteristic	Mean	Standard Deviation	Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
b. Classroom characteristics:						
Traditional—Non-Traditional	3.23	1.44	.11	.07	.00	-.00
Stressful--Satisfying	4.75	1.59	.08	-.14	-.13	-.03
Unstructured--Structured	5.42	1.28	-.06	-.06	.06	-.07
Passive--Active	5.53	1.06	-.15	.02	.05	.01
Boring--Challenging	5.28	1.10	-.08	-.14	-.03	-.18
Unruly--Disciplined	5.61	1.12	-.07	-.07	-.04	-.01
Authoritarian-- Democratic	4.02	1.44	.06	.10	.12	.16
C. School Characteristics:						
Fragmented--Unified	4.15	1.68	-.00	.09	-.18	.01
Passive--Active	4.38	1.50	-.02	-.03	-.12	.02
Ineffective--effective	4.97	1.38	-.04	-.08	.04	-.09
Boring--Interesting	4.89	1.27	-.02	.03	-.03	.05
Unfriendly--Warm	5.19	1.37	-.03	-.08	-.02	-.11
Authoritarian-- Democratic	3.89	1.51	.08	.07	.11	.08
Competitive--Cooperative	4.85	1.3.	-.04	-.04	-.11	-.06

$r \geq .12 = P\ .05$

$r \geq .16 = P\ .01$

Table 6

Inservice Workshop Features and Partial Correlations with Use/Impact

Variable and Univariate Statistics	Percentage Responses	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
a. Focus of Inservice Workshop (would indicate one or more)					
Basic Skills	24%	.00	.19	-.09	.13
Students with Special Needs	18.9%	.01	.01	.00	-.03
Career Needs of Students	1.0%	.11	.09	.04	.08
Gifted and Talented Students	11.1%	.05	.09	-.14	.06
Discipline and Behavior of Students	9.4%	.06	.17	.01	.07
Computer Assisted Instruction	35.4%	-.08	-.31	-.03	-.06
Other	9.5%	-.01	.08	.14	-.02

Table 6 (continued)

Variable and Univariate Statistics	Percentage Responses	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
b. Reason for Attending the Inservice Workshop (would indicate one)					
Participant initiated the idea	3.0%	.06	.15	.09	-.01
Volunteered out of interest	60.8%	-.00	-.09	.02	-.07
Saw it advertised	15.1%	-.03	.07	.04	.03
Asked by colleague	7.8%	.04	.02	-.09	.12
Felt it was responsibility	5.6%	-.04	-.03	-.08	-.12
Asked to do so by a supervisor/ administrator	5.6%	.03	-.01	.09	.02
Was ordered to attend	2.2%	-.09	.06	-.05	.13
c. Source of the Idea for the Inservice Workshop (would indicate one)					
Participant	3.0%	-.06	.04	-.09	-.10
Fellow teacher	28.0%	-.01	-.05	-.01	.05
Group of teachers	20.0%	.03	.10	-.11	.08

Table 6 (continued)

Variable and Univariate Statistics	Percentage Responses	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Supervisor/Chairperson	18.2%	.02	.03	.12	-.00
Building Principal	4.9%	-.02	.03	.03	.08
District Administrator	1.8%	-.04	-.18	-.03	-.13
School Committee/Parents	2.7%	-.01	-.01	-.01	.05
Needs Assessment	2.2%	-.00	-.04	-.05	-.16
Unknown	20.0%	-.05	-.04	.08	-.12

Table 6 (continued)

Variable	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
d. Importance Placed on inservice by Administration (coded 1 = little to 4 = very high)	3.01	1.21	-.04	.05	.05	.09
e. Number of sessions held in the inservice workshop	8.73	3.38	-.01	-.08	.16	-.11
f. Number of sessions attended by participants	8.00	3.18	.09	-.06	.09	-.08
g. Amount of time devoted to the inservice (coded 1 = much too short to 4 = too long)	2.25	0.71	.08	.01	-.05	.08
h. Number of participants in the inservice workshop	20.31	8.59	-.08	-.25	-.21	-.07
i. Where participants came from (coded 1 = my school to 5 = different schools						

Table 6 (continued)

Variable	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
j. Number of Consultants Involved in the Inservice	2.04	1.64	-.03	.08	.03	.02

Table 6 (continued)

Variable and Univariate Statistics	Percentage Responses	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
k. Where the Consultants Came from					
(percentage response indicated)					
Participants' own school	16.3%	.08	.02	.02	-.07
Elsewhere in the same system	23.2%	-.06	.02	-.07	.06
Another school system	27.5%	.15	.10	-.16	.07
A college or university	28.4%	.04	.21	.08	.01
A public agency or collaboration	12.0%	-.10	-.11	-.08	.01
An independent consulting group	9.9%	-.09	-.06	-.01	.04
Business or industry	8.6%	-.13	-.23	.04	-.14

Table 8 (continued)

Variable	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
l. Extent to Which Consultant's Style Matched Participants' (coded 1 = not at all to 4 = a great deal)	3.31	0.77	.19	-.10	-.17	.08
m. Overall Effectiveness of the Consultant (coded 1 = very ineffective to 4 = very effective)	3.71	1.06	.12	.11	.02	.15
n. Participant Rating of Consultants' Effectiveness with Specific Behaviors (coded 1 = very ineffective to 5 = highly effective)						
Relating to the participants	4.08	0.94	.31	.14	-.01	.25

Table 6 (continued)

Variable	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Completing the objectives of the workshop	4.10	0.85	.28	-.01	-.19	.21
Leading/directing discussions and interactions among participants	3.87	0.91	.22	.03	-.07	.18
Providing participants with new information	4.14	0.87	.22	-.04	-.15	.13
Meeting participants' needs and expectations	3.85	0.98	.30	-.00	-.16	.20
o. The Extent to Which the Consultant(s) Used Specific Methods of Instruction/learning (coded from 0 = not at all to 3 = a great deal)						
lecturing by the						

Table 6 (continued)

Variable	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Understanding teachers' concerns	4.10	0.95	.29	.08	-.06	.30
Encouraging participation	4.13	0.86	.23	.07	.03	.17
Stimulating interest in the topic(s)	3.99	0.87	.30	.08	.03	.30
Making good use of your time together	3.86	0.96	.27	.00	-.08	.21
Demonstrating knowledge of the topic(s)	4.46	0.73	.29	.11	-.13	.24
Responding to participants' questions and concerns	4.30	0.85	.27	.05	.12	.15
Clearly explaining things	4.18	0.82	.25	-.05	-.10	.17
Using materials and resources	4.08	0.84	.22	-.10	-.10	.11

Table 6 (continued)

Variable	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Doing written assignments	1.36	0.96	.00	-.11	.03	-.03
Reading information packages	1.67	0.90	.11	.01	.03	-.12
Discussions with other participants	2.29	0.79	.09	.00	.05	-.05
Hands-on activities	2.10	1.01	.02	-.05	-.02	-.01
Developing activities, projects or programs	1.91	1.00	.04	-.18	-.01	-.06
Viewing A.V. presentations or films	0.77	0.98	-.02	-.22	-.10	-.12
Participating in simulations or games	1.38	1.06	.01	.14	.18	-.04
Observing the instructor or others apply skills	1.46	1.04	.05	-.05	-.08	.00
Practicing the skills, techinques or behaviors at the inservice sessions	1.77	1.07	.14	-.07	-.07	-.07

Table 6 (continued)

Variable	Mean	Standard Deviation	Partial Correlations with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Applying the skills, techniques or behaviors in your class(es)	1.68	1.03	.31	.32	-.13	.24
Having the instructor/ consultant assist you in applying skills with your own students/ class(es)	1.09	1.11	.19	.15	-.00	.15
p. Participants' Rating of How Theoretical or Practical the Inservice Workshops Were (coded 1 = very theoretical to 4 = very practical)						
The consultant's(s') lectures	3.19	0.90	.29	.07	-.10	.15
Doing written assign.	3.23	0.65	.29	-.04	.01	.15
Reading information, packages, books, etc.	2.86	0.86	.20	.04	-.03	.12

Table 6 (continued)

Variable	Mean	Standard Deviation	Partial Correlations with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Discussions with other participants	3.36	0.64	.19	.11	-.05	.12
Engaging in hands-on activities	3.56	0.59	.11	-.05	.01	.05
Developing activities, projects, or programs	3.29	0.68	.18	.06	.05	.12
Viewing A.V. presentations or films	2.69	0.58	-.00	-.01	-.07	.15
Participating in simulations or games	3.07	0.72	.06	.10	.01	.17
Observing the instructor or others apply skills	3.09	0.69	.15	.02	-.09	.08
Practicing the skills, techniques or behaviors at the inservice sessions	3.31	0.66	.23	.00	-.09	.09

Table 6 (continued)

Variable	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Applying the skills, techniques or behaviors in your class(es)	3.28	0.75	.29	.35	.03	.21
Having the instructor/ consultant assist you in applying skills, etc. with your own students/ class(es)	2.94	0.63	.20	.25	.09	.24

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r > .12 = P .05
r > .16 = P .01
r > .20 = P .001

Table 7

Intermediate Workshop Effects and Partial Correlations with Use/Impact

	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
a. Participants' Ratings of How Much They Learned about (coded 0 = nothing to 3 = a great deal)						
New subject matter or topics to teach	1.76	1.09	.16	-.05	-.03	
New or varied teaching methods/technology	2.19	0.95	.24	.10	-.09	.16
Motivating students to learn/achieve	1.92	0.98	.32	.22	-.17	.20
Use of worksheets or learning exercises	1.35	1.03	.25	.17	-.13	.18
Dealing with disruptive students	0.72	1.04	.17	.10	.01	-.01

Table 7 (continued)

	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Working with special needs (Chapter 766) students	0.96	1.11	.20	.01	-.03	.06
Social relationships among students	0.85	1.00	.09	.25	-.06	.10
Working with gifted and talented students	1.05	1.11	.16	.14	-.13	.18
Career/vocational awareness for students	0.73	0.96	.17	.01	.01	.06
Interracial attitudes or relationships	0.26	0.58	.07	.07	.08	.03
Learning to better use community resources	0.87	1.06	.06	.01	.01	.05

Table 7 (continued)

	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Providing guidance and counseling to students	0.72	0.99	.15	.20	.03	.09
Increasing your awareness of your own teaching style/ behavior	1.65	1.45	.25	.30	-.10	.27
Improving staff communication and morale	0.82	0.99	.23	.23	.01	.18

Table 7 (continued)

	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
b. Participants' Ratings of How Much Knowledge Was Acquired from the Following (coded 0 = none to 4 = a great great deal)						
The consultant's(s') lectures	2.71	0.95	.25	-.02	-.14	.07
Doing written assignments	1.60	1.10	.17	-.12	.02	.10
Reading information packages, books, etc.	1.92	0.97	.27	.28	.03	.12
Discussions with other participants	2.33	0.93	.20	.02	-.08	.06
Engaging in hands-on activities	2.38	1.29	.13	-.04	-.08	.11

Table 7 (continued)

			Partial Correlation with Continued Use/Adaptation			
	Mean	Standard Deviation	Predicted Use	Continued Use	Adaptation	Future Use
Developing activities, projects or programs	1.99	1.24	.24	-.06	-.14	.15
Viewing A.V. presentations or films	0.90	1.02	.10	-.06	-.01	.01
Participating in simulations or games	1.44	1.18	.14	.20	.13	.10
Observing the instructor or others apply skills	1.85	1.96	.10	-.04	0.22	-.03
Practicing the skills, techniques or behaviors	2.00	1.24	.13	-.05	.03	.04
Applying the skills, techniques or behaviors in your class(es)	1.85	1.23	.38	.42	.01	.37

Table 7 (continued)

	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Having the instructor/ consultant assist you in applying skills, etc. with your own students/ class(es)	1.10	1.13	.26	.26	-.02	.18
c. Participants' Ratings of the Extent to Which Each of the Following Has Contributed to Their Using the Knowledge Gained through the Inservice (coded 0 = not at all to 4 = extraordinary amount)						
The inservice itself	2.76	0.80	.30	.24	-.16	.32

Table 7 (continued)

	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
Your interest in the topic	2.91	-.76	.19	.11	.05	.18
The needs of your students, class(es)	2.64	0.87	.24	.14	.01	.20
Content/need of your position	2.20	0.91	.16	.14	-.14	.14
Support from your colleagues	1.63	0.92	.11	.08	-.11	.05
Support from the administration	1.57	1.01	.08	.06	-.03	.09
Expectations of your supervisor of the administration	1.33	0.99	.05	-.01	.02	.00

Table 7 (continued)

	Mean	Standard Deviation	Partial Correlation with Continued Use/Adaptation: Predicted Use	Continued Use	Adaptation	Future Use
d. Influence: The Degree to to Which Participants Think That Each of the Following Influence their Current and Continued Use of Information, Skills, etc. (coded 0 = not at all, to 4 = a great deal)						
Current success in using the information, skills, etc.	3.22	1.12		.51	-.03	.50
Needs of your students	3.50	0.99		.38	-.01	.44
The support you get from administrators and supervisors	2.58	1.22		-.00	-04	.14

Table 7 (continued)

	Mean	Standard Deviation	Predicted Use	Partial Correlation with Continued Use/Adaptation: Continued Use	Adaptation	Future Use
The support you get from colleagues and other staff	2.28	1.15		.16	-.03	.22
The expectations of your supervisor/ administrator	2.36	1.25		.01	-.03	.17
The extent to which the info., skills, etc. complement your own style of teaching	3.05	1.01		.26	.01	.27

$r \geq .12 = P \quad .05$
$r \geq .16 = P \quad .01$
$r \geq .20 = P \quad .001$

Table 8

Multiple Correlations of Inservice Impacts With Sets of Control and Independent Variables[1]

Variables Entered in Equation	Predicted Use	Continued Use	Adaptation	Future Use
Less Alterable (Control) Variables				
Background characteristics of participants	.41	.17	.19*	.15
Professioanl/Psychological traits of participants	.57**	.35**	.24	.32*
School, District and Community Characteristics	.32	.13	.13	.11
Background and Professional/ Psychological Characteristics of participants	.66**	.47**	.45*	.41
All Control Variables Above	.71**	.53	.51	.47
More Alterable (Independent) Variables				
School Climate	.35*	.10	.13	.11
Workshop Characteristics	.73**	.47**	.30	.38**
Workshop Effects	.64**	.19**	.08*	.17**
All Control Variables and School Climate	.75*	.62	.62	.60
All Control Variables and Workshop Characteristics	.85*	.84*	.81*	.76
All Control Variables and Workshop Effects	.82*	.59*	.56*	.55
All Control Variables with School Climate and Workshop Characteristics	.88**	.90	.89	.86
All Control Variables and all Independent Variables	.92*	.92**	.91	.90

* $< .05$
** $< .01$

Table 9

Correlation Matrix of Six Dependent Variables[1]

Using Pearson Product Moment Coefficients

(With Internal Consistency Reliability Alphas)

	New Know.	Know. Used	Predicted Use	Continued Use	Adaptation	Future Use
New Knowledge[1]	(.86)	.51***	.60***	.27***	-.05	.31***
Knowledge Used[1]	.51***	(.92)	.55***	.55***	-.03	.41***
Predicted Use	.60***	.55***	(.90)	.44***	-.05	.53***
Continued Use	.27***	.55***	.44***	(.93)	.02	.62***
Adaptation	-.05	-.03	-.05	.02	(.85)	-.04
Future Use	.31***	.41***	.53***	.62***	-.04	(.93)

* = P > .05

** = P > .01

*** = P > .001

1. These variables were drawn from the set of dependent variables examined in the second phase of this study. New Knowledge (knowledge acquired) was a five-item composite scale with a mean of 2.23 and a standard deviation of 0.78. Knowedge Used (knowledge applied) was a five item scale with a mean of 2.20 and a standard deviation of 1.18.